

**What is claimed is:**

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1. A compound 8 to 50 nucleobases in length targeted to a nucleic acid molecule encoding p70 S6 kinase, wherein said compound specifically hybridizes with and inhibits the expression of p70 S6 kinase.

2. The compound of claim 1 which is an antisense oligonucleotide.

3. The compound of claim 2 wherein the antisense oligonucleotide has a sequence comprising SEQ ID NO: 10, 11, 12, 13, 14, 16, 18, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 46, 47, 48 or 49.

4. The compound of claim 2 wherein the antisense oligonucleotide has a sequence comprising SEQ ID NO: 11, 12, 13, 14, 16, 20, 21, 22, 23, 29, 30, 31, 34, 37, 38, 41, 43, 44, 46 or 48.

5. The compound of claim 2 wherein the antisense oligonucleotide comprises at least one modified internucleoside linkage.

6. The compound of claim 5 wherein the modified internucleoside linkage is a phosphorothioate linkage.

7. The compound of claim 2 wherein the antisense oligonucleotide comprises at least one modified sugar moiety.

8. The compound of claim 7 wherein the modified sugar moiety is a 2'-O-methoxyethyl sugar moiety.

9. The compound of claim 2 wherein the antisense oligonucleotide comprises at least one modified nucleobase.

10. The compound of claim 9 wherein the modified nucleobase is a 5-methylcytosine.

11. The compound of claim 2 wherein the antisense oligonucleotide is a chimeric oligonucleotide.

12. A compound 8 to 50 nucleobases in length which specifically hybridizes with at least an 8-nucleobase portion of an active site on a nucleic acid molecule encoding p70 S6 kinase.

13. A composition comprising the compound of claim 1 and a pharmaceutically acceptable carrier or diluent.

14. The composition of claim 13 further comprising a colloidal dispersion system.

15. The composition of claim 13 wherein the compound is an antisense oligonucleotide.

16. A method of inhibiting the expression of p70 S6 kinase in cells or tissues comprising contacting said cells or tissues with the compound of claim 1 so that expression of p70 S6 kinase is inhibited.

17. A method of treating an animal having a disease or condition associated with p70 S6 kinase comprising administering to said animal a therapeutically or prophylactically effective amount of the compound of claim 1 so that expression of p70 S6 kinase is inhibited.

18. The method of claim 17 wherein the disease or condition is a hyperproliferative disorder.

19. The method of claim 18 wherein the hyperproliferative disorder is cancer.

20. The method of claim 16 wherein the disease or condition is a metabolic disorder.